



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/613,951	07/11/2000	Robert G. Wendt	TPG 306	1942

7590 02/07/2006

Kolisch Hartwell Dickinson  
McCormack & Heuser  
Suite 200  
520 S W Yamhill Street  
Portland, OR 97204

EXAMINER
----------

PAIK, SANG YEOP

ART UNIT	PAPER NUMBER
----------	--------------

3742

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/613,951

Applicant(s)

WENDT ET AL.

Examiner

Sang Y. Paik

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 36-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 36-66 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 36, 38-40, 44 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baron et al (US 4,401,052) in view of vonCampe (US 5,053,355) or Toyomoto et al (US 4,844,719), and Akram et al (US 5,741,547) or Yoshioka et al (US 6,074,487).

Baron shows a vapor deposition diffusion system having a substrate strip moving through a evaporation chamber with three serially located heated manifolds made of graphite or boron nitride including substantially closed vessels where each manifolds has the first and second vessels and an array of vapor delivery nozzles creating a fog to uniformly deposit the source material to the substrate strip. Baron having the structure as claimed is capable of concurrently emitting a plurality of different source materials from the first and second vessels, but it does not show each vessel having different source materials and the system being that of the physical vapor deposition effusion system.

VonCampe or Toyomoto shows that it is well known in the art to use a physical vapor deposition to produce source materials to coat the intended substrates.

Akram or Yoshioka shows that it is well known in the art to provide two different source materials that are combined to create a concurrently emitted reactant mixture.

Art Unit: 3742

In view of vonCampe or Toyomoto, it would have been obvious to one of ordinary skill in the art to adapt Baron with the system including a physical vapor deposition to more effectively provide the coating of the vaporized source materials; and in view of Akram or Yoshioka, it would have been obvious to one of ordinary skill in the art to adapt Baron with the vessels having different source materials that can be combined to create the concurrently combined mixture to provide a desired coating material.

With respect to claim 40, Baron further shows a thermal shield such as a tantalum foil around the manifold. With respect to claim 54, Baron teaches that the deposition rate as well as uniformity of deposition depends with the geometry of the nozzle among other factors, and it would have been obvious to one of ordinary skill in the art to adapt the discharge opening of the nozzles within the claimed range or any other range that will meet the desired deposition rate and the uniformity.

3. Claims 37, 47-53 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baron in view of vonCampe or Toyomoto, and Akram or Yoshioka as applied to claims 36, 38-40, 44 and 54 above, and further in view of Chow (US 5,031,229).

Baron in view of vonCampe or Toyomoto, and Akram or Yoshioka discloses the device claimed except having a heating system to maintain the nozzle at a temperature higher than the source material.

Chow shows an evaporating manifold or vessel made of boron nitride with a lid having a plurality of nozzle that is provided with an electrical U-shaped heating system for heating the nozzle at the temperature higher than the body of the vessel (also, see column 6, lines 6-33).

In view of Chow, it would have been obvious to one of ordinary skill in the art to adapt

Art Unit: 3742

Baron, as modified by vonCampe or Toyomoto, and Akram or Yoshioka, with the heating system to provide a higher temperature than the body of the vessel to keep the evaporated material from condensing.

With respect to claim 50, it would have been obvious to one of ordinary skill in the art to modify the distance between the nozzles within the claimed range to modify the deposition rate and the uniformity of the deposition surface.

4. Claims 41-43, 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baron in view of vonCampe or Toyomoto, and Akram or Yoshioka and Chow as applied to claims 36-40, 44, 47-55 above, and further in view of Finicle (US 5,158,750).

Baron in view of vonCampe or Toyomoto, and Akram or Yoshioka and Chow discloses the device claimed except plural insulation layers.

Finicle shows a vessel or crucible having a thermal control shield around the vessel including an outer shell made of ceramic material such as graphite and a plurality of insulation layers. In view of Finicle, it would have been obvious to one of ordinary skill in the art to adapt Baron, as modified by vonCampe or Toyomoto, and Akram or Yoshioka, and Chow, with the plurality of insulation layers to further protect the vessel.

5. Claims 56-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baron in view of vonCampe or Toyomoto, and Akram or Yoshioka and Chow as applied to claims 36-40, 44, 47-55 above, and further in view of Matsuda et al (US 5,571,749).

Baron in view of vonCampe or Toyomoto, and Akram or Yoshioka, and Chow discloses the device claimed including the crucibles, the nozzles, the nozzle heating system, the thermal control shield except having a roll assembly to continuously supply a strip material.

Art Unit: 3742

Matsuda et al shows a roll assembly where a substrate strip is fed through an evaporation chamber for chemical deposition. In view of Matsuda et al, it would have been obvious to one of ordinary skill in the art to adapt Baron, as modified by vonCampe or Toyomoto, and Akram or Yoshioka, and Chow, with a roll assembly to feed a strip for a continuous process of the vapor deposition having a substantially constant level to produce the desired deposition level since such level or velocity would be determinative how thick the deposition layer can be as taught by Baron (see column 5, lines 65-67).

***Response to Arguments***

6. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y. Paik whose telephone number is 571-272-4783. The examiner can normally be reached on M-F (9:00-4:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sang Y Paik  
Primary Examiner  
Art Unit 3742

syp